UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/007,834 | 11/05/2001 | Kazuyuki Matsumoto | CU-2703 RJS | 7616 |

26530 7590 04/26/2004

LADAS & PARRY
224 SOUTH MICHIGAN AVENUE, SUITE 1200
CHICAGO, IL 60604

| EXAMINER | |
|---|---|
| HARAN, JOHN T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1733 | |

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/007,834 | MATSUMOTO ET AL. | |
| | Examiner | Art Unit | |
| | John T. Haran | 1733 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *18 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. This action is in response to the amendment filed on 12/18/01. The 112, second paragraph rejection is withdrawn in light of the amendment to the claims. The obvious double patenting rejection is withdrawn in light of the filed terminal disclaimer. The 103(a) obviousness rejection of the claims over US 2002/0056929 and US 2002/0056930 have been overcome by the filing of a certified translation of the foreign priority papers which provide support for the claimed limitations.

### *Terminal Disclaimer*

2. The terminal disclaimer filed on 12/18/01 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application No. 10/001,145 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osawa et al (U.S. Patent 6,071,443) in view of Summersgill et al (U.S. Patent 5,985,084), Takahashi et al (U.S. Patent 6.302,985), or Toide et al (U.S. Patent 5,318,653).

Osawa et al is directed to a method and apparatus for manufacturing a lens sheet wherein a plurality of nozzles apply ionizing radiation curing resin on the upper surface of a forming mold in the form of threads from one side of the mold to another to form an uncured resin layer on the upper mold surface; coating a bank resin (pool of resin) on top of the first resin layer with a separate nozzle; applying a substrate with a substrate supplying device on top of the resins and laminating it by pressing it with a pressure roller from one side to another and in the process spreading the resin bank and eliminating air bubbles, then irradiating the resin through the substrate with an irradiation device to cure the resins, and then removing the substrate with the cured resins from the forming mold (See Figures 1-4; Column 4, lines 5-21; Column 5, line 26 to Column 6, line 7).

Osawa et al and the present application are both directed to eliminating bubbles in the resin when laminating the substrate to the resin in the forming mold (see paragraph 0005 of computer translation), however Osawa et al is silent towards accomplishing this by having the substrate supply device put the substrate in an inclined state relative to the upper surface of the forming mold. However, it is well known and conventional in the art when placing a substrate over a pool of liquid that needs to be evenly spread across a surface in a manner to eliminate bubbles to have a substrate supply device provide the substrate at an incline to the surface so that one edge touches one edge of the surface and the substrate is gradually lowered and in the process spreads the liquid as it is lowered and eliminates bubbles from being present in the liquid and between the substrate and the surface as shown for example in

Summersgill et al (See Figure 1; Column 5, lines 19-24, and 58-63; and Column 6, lines 33-35), Takahashi et al (See Figures 3-5 and Column 2, lines 44-58), and Toide et al (See Figure 18 and Column 16, lines 17-25). One skilled in the art would have readily appreciated taking additional well known and conventional measures to ensure the elimination of bubbles in the finished lens sheet such as having a substrate supplying device that puts the substrate in an inclined state with respect to the upper surface of the forming mold before placing the substrate on the upper surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a substrate supplying device that supplies and is capable of supplying the substrate in inclined state with respect to the upper surface of the forming mold before placing the substrate on the upper surface in the method and apparatus of Osawa et al in order to further ensure the elimination of bubbles as suggested in Summersgill et al, Takahashi et al, and Toide et al.

5. Claims 3-6 and 9-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osawa et al (U.S. Patent 6,071,443) in view of Summersgill et al (U.S. Patent 5,985,084), Takahashi et al (U.S. Patent 6.302,985), or Toide et al (U.S. Patent 5,318,653) as applied to claims 1-2 and 7-8 above, and further in view of Futoshi (JP 07-148751) and Watanabe et al (U.S. Patent 5,769,456).

Regarding claims 3-4 and 9-10, Osawa et al is silent towards having a mold temperature adjust device for adjusting the temperature of the mold to a predetermined temperature, however it is known to control and adjust the temperature of a lens forming

mold, as shown for example in Watanabe et al (See abstract). Furthermore, one skilled in the art would have been motivated to control the temperature of the mold in order to heat the resin and ensure that it is sufficiently viscous to spread and to remove excess solvent from the resin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a mold temperature adjusting device, as is known in the art as evidenced by Watanabe et al, and to adjust the mold temperature, in order to ensure adequate spreading of the resins and removal of solvent, in the apparatus and method of Osawa et al, as modified above.

Regarding claims 5-6 and 11-14, Osawa et al is silent towards having an endless conveying device however Futoshi teaches having an endless conveying device for conveying the forming mold along a travel passage during which all the steps of the process are carried out (See paragraphs 0012-0013 of the computer translation). It would have been obvious perform the method of Osawa et al using known apparatus such as the endless conveyor device taught in Futoshi. Furthermore one skilled in the art would have readily appreciated readjusting the temperature of the mold on the return trip before the next lens is formed. It would have been obvious to do so in the method and apparatus of Osawa et al, as modified above.

Regarding claims 15-22, one skilled in the art would have readily appreciated that the substrate supply device would need to supply the substrate in synchronization with the traveling of the of the forming mold in order for the substrate or else the placement of the substrate on the forming mold would not be guaranteed. It would have

been obvious for the substrate supply device to work in synchronization with the travel of the forming mold.

6. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Futoshi (JP 07-148751) in view of Osawa et al (U.S. Patent 6,071,443) and any one of Summersgill et al (U.S. Patent 5,985,084), Takahashi et al (U.S. Patent 6.302,985), or Toide et al (U.S. Patent 5,318,653).

Futoshi is directed to a method and apparatus for manufacturing a lens sheet wherein a nozzle dispenses ionization radiation curing type resin in the form of a liquid on the entirety of an upper surface of a forming mold to form an uncured resin layer, then a second nozzle dispenses a pool of ionization radiation curing type resin on the uncured resin layer, then a substrate supplying device places a substrate on the uncured resin and the substrate is laminated to the uncured resin by pressing it with a pressure roller from one side to another and in the process spreading the uncured resin pool and eliminating any air bubbles, then an irradiation device irradiates the resin through the substrate to cure the resin, and then finally the cured resin together with the substrate is removed from the forming mold (See paragraphs 009-0011 of the computer translation).

Futoshi and the present application are both directed to eliminating bubbles in the lens sheet (see paragraph 0005 of computer translation), however Futoshi is silent towards using a plurality of nozzles to apply the ionization radiation curing type resin in

the form of threads from one side of the mold to another. Osawa et al teaches applying an ionization radiation curing type resin to a lens sheet forming mold with a plurality of nozzles in the form of threads from one side of the mold to another in order to avoid the formation of air bubbles (See Figure 2; Column 1, lines 57-65; Column 4, lines 6-21). One skilled in the art would have readily appreciated applying the resin in a manner to avoid the formation of bubbles since Futoshi is directed to eliminating bubbles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a plurality of nozzles that apply the resin in the form of threads from one side of the mold to another in the method and apparatus of Futoshi, as suggested in Osawa et al, in order to avoid formation of air bubbles in the resin layer.

Futoshi and the present application are both directed to eliminating bubbles in the resin when laminating the substrate to the resin in the forming mold (see paragraph 0005 of computer translation), however Futoshi is silent towards accomplishing this by having the substrate supply device put the substrate in an inclined state relative to the upper surface of the forming mold. However, it is well known and conventional in the art when placing a substrate over a pool of liquid that needs to be evenly spread across a surface in a manner to eliminate bubbles to have a substrate supply device provide the substrate at an incline to the surface so that one edge touches one edge of the surface and the substrate is gradually lowered and in the process spreads the liquid as it is lowered and eliminates bubbles from being present in the liquid and between the substrate and the surface as shown for example in Summersgill et al (See Figure 1; Column 5, lines 19-24, and 58-63; and Column 6, lines 33-35), Takahashi et al (See

Figures 3-5 and Column 2, lines 44-58), and Toide et al (See Figure 18 and Column 16, lines 17-25). One skilled in the art would have readily appreciated taking additional well known and conventional measures to ensure the elimination of bubbles in the finished lens sheet such as having a substrate supplying device that puts the substrate in an inclined state with respect to the upper surface of the forming mold before placing the substrate on the upper surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a substrate supplying device that supplies and is capable of supplying the substrate in inclined state with respect to the upper surface of the forming mold before placing the substrate on the upper surface in the method and apparatus of Futoshi in order to further ensure the elimination of bubbles as suggested in Summersgill et al, Takahashi et al, and Toide et al.

Regarding claim 2, as noted above Futoshi teaches applying a pool of resin to a part of the uncured resin layer and pressing the substrate from one side to another.

Regarding claim 8, as noted above Futoshi teaches an additional nozzle for applying the uncured resin pool.

7. Claims 3-6 and 9-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Futoshi (JP 07-148751) in view of Osawa et al (U.S. Patent 6,071,443) and any one of Summersgill et al (U.S. Patent 5,985,084), Takahashi et al (U.S. Patent 6.302,985), or Toide et al (U.S. Patent 5,318,653) as applied to claims 1-2 and 7-8 above, and further in view of Watanabe et al (U.S. Patent 5,769,456).

Regarding claims 3-4 and 9-10, Futoshi is silent towards having a mold temperature adjust device for adjusting the temperature of the mold to a predetermined temperature, however it is known to control and adjust the temperature of a lens forming mold, as shown for example in Watanabe et al (See abstract). Furthermore, one skilled in the art would have been motivated to control the temperature of the mold in order to heat the resin and ensure that it is sufficiently viscous to spread and to remove excess solvent from the resin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a mold temperature adjusting device, as is known in the art as evidenced by Watanabe et al, and to adjust the mold temperature, in order to ensure adequate spreading of the resins and removal of solvent, in the apparatus and method of Futoshi, as modified above.

Regarding claims 5-6 and 11-14, Futoshi teaches having an endless conveying device for conveying the forming mold along a travel passage during which all the steps of the process are carried out (See paragraphs 0012-0013 of the computer translation). One skilled in the art would have readily appreciated readjusting the temperature of the mold on the return trip before the next lens is formed. It would have been obvious to do so in the method and apparatus of Futoshi, as modified above.

Regarding claims 15-22, one skilled in the art would have readily appreciated that the substrate supply device would need to supply the substrate in synchronization with the traveling of the of the forming mold in order for the substrate or else the placement of the substrate on the forming mold would not be guaranteed. It would have

been obvious for the substrate supply device to work in synchronization with the travel of the forming mold.

8. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto (JP 64-086102) in view of Osawa et al (U.S. Patent 6,071,443) and any one of Summersgill et al (U.S. Patent 5,985,084), Takahashi et al (U.S. Patent 6.302,985), or Toide et al (U.S. Patent 5,318,653).

Makoto is directed to a method for manufacturing a lens sheet wherein ionization radiation curing type resin in the form of a liquid is supplied on the entirety of an upper surface of a forming mold to form an uncured resin layer, then a pool of ionization radiation curing type resin is dispensed on the uncured resin layer, then a substrate is placed on the uncured resin and the substrate is laminated to the uncured resin by pressing it with a pressure roller from one side to another and in the process spreading the uncured resin pool and eliminating any air bubbles, then an irradiation device irradiates the resin through the substrate to cure the resin, and then finally the cured resin together with the substrate is removed from the forming mold (See English language abstract and Figure 6).

Makoto and the present application are both directed to eliminating bubbles in the lens sheet (See English abstract), however Makoto is silent towards using a plurality of nozzles to apply the ionization radiation curing type resin in the form of threads from one side of the mold to another. Osawa et al teaches applying an ionization radiation curing type resin to a lens sheet forming mold with a plurality of nozzles in the form of

threads from one side of the mold to another in order to avoid the formation of air bubbles (See Figure 2; Column 1, lines 57-65; Column 4, lines 6-21). One skilled in the art would have readily appreciated applying the resin in a manner to avoid the formation of bubbles since Makoto is directed to eliminating bubbles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a plurality of nozzles that apply the resin in the form of threads from one side of the mold to another in the method and apparatus of Makoto, as suggested in Osawa et al, in order to avoid formation of air bubbles in the resin layer.

Makoto and the present application are both directed to eliminating bubbles in the resin when laminating the substrate to the resin in the forming mold (See English abstract), however Makoto is silent towards accomplishing this by having the substrate supply device put the substrate in an inclined state relative to the upper surface of the forming mold. However, it is well known and conventional in the art when placing a substrate over a pool of liquid that needs to be evenly spread across a surface in a manner to eliminate bubbles to have a substrate supply device provide the substrate at an incline to the surface so that one edge touches one edge of the surface and the substrate is gradually lowered and in the process spreads the liquid as it is lowered and eliminates bubbles from being present in the liquid and between the substrate and the surface as shown for example in Summersgill et al (See Figure 1; Column 5, lines 19-24, and 58-63; and Column 6, lines 33-35), Takahashi et al (See Figures 3-5 and Column 2, lines 44-58), and Toide et al (See Figure 18 and Column 16, lines 17-25). One skilled in the art would have readily appreciated taking additional well known and

conventional measures to ensure the elimination of bubbles in the finished lens sheet such as having a substrate supplying device that puts the substrate in an inclined state with respect to the upper surface of the forming mold before placing the substrate on the upper surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a substrate supplying device that supplies and is capable of supplying the substrate in inclined state with respect to the upper surface of the forming mold before placing the substrate on the upper surface in the method and of Makoto in order to further ensure the elimination of bubbles as suggested in Summersgill et al, Takahashi et al, and Toide et al.

Regarding claim 2, as noted above Makoto teaches applying a pool of resin to a part of the uncured resin layer and pressing the substrate from one side to another.

9. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto (JP 64-086102) in view of Osawa et al (U.S. Patent 6,071,443) and any one of Summersgill et al (U.S. Patent 5,985,084), Takahashi et al (U.S. Patent 6.302,985), or Toide et al (U.S. Patent 5,318,653) as applied to claims 1-2 above, and further in view of Futoshi (JP 07-148751).

Makoto is silent towards the apparatus utilized to perform, such as having a nozzle for dispensing the resin or a substrate supply device for providing the substrate at an inclined state in respect to the forming mold. It is well known and conventional in the lens forming art to have a nozzle for supplying the uncured resin layer and a separate nozzle for supplying the uncured resin pool, and to have a substrate supplying

device, as shown for example in Futoshi (See Figure 7). Additionally it is known to apply the resin from a plurality of nozzles in the form of threads as taught in Osawa et al (See Figure 2) It would have been obvious to use conventional devices in an apparatus for performing the method of Makato such as having separate nozzles for applying the resin and have a substrate supply device, as suggested in Futoshi and to have a plurality of nozzles for apply the resin in the form of threads. Furthermore it would have been obvious to have the substrate supply device to be capable of supplying the substrate in inclined state with respect to the upper surface of the forming mold before placing the substrate on the upper surface in the apparatus of Makoto in order to further ensure the elimination of bubbles as suggested in Summersgill et al, Takahashi et al, and Toide et al.

10. Claims 3-6 and 9-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto (JP 64-086102) in view of Osawa et al (U.S. Patent 6,071,443) and any one of Summersgill et al (U.S. Patent 5,985,084), Takahashi et al (U.S. Patent 6.302,985), or Toide et al (U.S. Patent 5,318,653) as applied above to claims 1-2 and further taken with Futoshi (JP 07-148751) as applied to claims 7-8 above , and further in view of Watanabe et al (U.S. Patent 5,769,456).

Regarding claims 3-4 and 9-10, Makoto is silent towards having a mold temperature adjust device for adjusting the temperature of the mold to a predetermined temperature, however it is known to control and adjust the temperature of a lens forming mold, as shown for example in Watanabe et al (See abstract). Furthermore, one skilled

in the art would have been motivated to control the temperature of the mold in order to heat the resin and ensure that it is sufficiently viscous to spread and to remove excess solvent from the resin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a mold temperature adjusting device, as is known in the art as evidenced by Watanabe et al, and to adjust the mold temperature, in order to ensure adequate spreading of the resins and removal of solvent, in the apparatus and method of Makoto, as modified above.

Regarding claims 5-6 and 11-14, Makoto is silent towards having an endless conveying device however Futoshi teaches having an endless conveying device for conveying the forming mold along a travel passage during which all the steps of the process are carried out (See paragraphs 0012-0013 of the computer translation). It would have been obvious perform the method of Makoto using known apparatus such as the endless conveyor device taught in Futoshi. Furthermore one skilled in the art would have readily appreciated readjusting the temperature of the mold on the return trip before the next lens is formed. It would have been obvious to do so in the method and apparatus of Makoto, as modified above.

Regarding claims 15-22, one skilled in the art would have readily appreciated that the substrate supply device would need to supply the substrate in synchronization with the traveling of the of the forming mold in order for the substrate or else the placement of the substrate on the forming mold would not be guaranteed. It would have been obvious for the substrate supply device to work in synchronization with the travel of the forming mold.

### *Response to Arguments*

11. Applicant's arguments with respect to claim 1-22 have been considered but are moot in view of the new ground(s) of rejection.

As noted above Osawa et al (U.S. Patent 6,071,443) teaches a plurality of nozzles for applying an ionization radiation curable adhesive to a forming mold in the form of threads from one end of the mold to the other (See Figure 2) and renders Applicants arguments moot.

### *Conclusion*

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is **(571) 272-1217**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John T. Haran

JEFF H. AFTERGUT
PRIMARY EXAMINER
GROUP 1300